

CLAIMS

What is claimed is:

1. A method of making a multicontact electrode array comprising:
 - a. forming on a mandrel a multiwire helically-wound configuration wherein each wire of the multiwire helically-wound configuration has a distal end that is bent to extend radially outward, and wherein the multiwire helically-wound configuration has an outer diameter;
 - b. forming a separation tube having an inside diameter that is approximately the same as the outer diameter of the multiwire lead;
 - c. positioning the separation tube over the helically wound multiwire lead and mandrel, the separation tube having a longitudinal slit at one end thereof through which the pigtail end of each wire extends;
 - d. placing a plurality of open-ring contacts having an open axial gap snugly over the separation tube, with the pigtail end of each wire extending through the axial gap of a respective open-ring contact;
 - e. using a compressive die to firmly close the gap between the ring contacts and the pigtail end of each wire;
 - f. electrically and mechanically bonding the pigtail end of each wire to the open-ring contact;
 - g. removing the mandrel from the central lumen and replacing it with a molding stylet;
 - h. placing the pre-assembled electrode array and molding stylet in a molding die;
 - i. filling all internal gaps formed by the electrode components with a polymer filler material through an access hole in the molding die;
 - j. curing the polymer filler material;

k. removing the molding stylet to form a central lumen in the electrode array.

2. The method of Claim 1 wherein electrically and mechanically bonding the pigtail end of each wire to an open-ring contact comprises
trimming the pigtail to a desired length, and
laser welding the wire to the ring contact.

3. The method of Claim 2 further including positioning the assembled multiwire lead, separation tube, and open ring contacts in a compressive die prior to trimming the pigtail lead to a desired length, and applying a sufficient compressive force to the open-ring contact so as to close the open-ring contact firmly against the pigtail lead passing through the axial gap.

4. The method of Claim 3 wherein the ring contact is made from a compressible material, and wherein the method further includes closing the open ring contacts with sufficient compressive force so as to compress the ring contact into the body of the separation tube and closing the gap between the ring contact and the lead wires.

5. The method of Claim 2 further including closing the distal end of the electrode array to form a rounded tip.

6. The method of Claim 5 wherein closing the distal end of the electrode array comprises applying a liquid polymer to the distal end of the electrode array, and allowing the liquid polymer to cure.

7. The method of Claim 5 wherein closing the distal end of the electrode array comprises applying a pre-cured plug made from the same material as the filler molding material to the distal end of the electrode array.

8. The method of Claim 1 wherein forming the multiwire helically wound configuration comprises placing the multiwire helically wound configuration on a mandrel, and unwrapping the distal end of each wire to form a distal protruding tip.

9. The method of Claim 8 further including unwrapping the distal end of each wire to achieve a desired axial separation or pitch between the distal protruding tips.

10. The method of Claim 9 further including trimming the distal protruding tips of each wire to a desired length.